

From: Coutant, Chuck/Nancy
Sent: Friday, October 06, 2006 1:34 PM
To: Baugh, Zenobia
Subject: Natural Solutions proposal

October 6, 2006

Mark Walker
Director of Public Affairs
Northwest Power & Conservation Council
851 SW 6th Ave., Suite 1100
Portland, OR 97204-1348

Dear Mr. Walker:

I am writing to support reconsideration of Natural Solutions' proposal to study induced, turbulent flow as a fish guidance technology. I strongly believe that this technology has promise of useful application to many fish-guidance issues in the Northwest.

In the late 1990s, as a member of the ISAB and ISRP, I realized that while induced, turbulent flow was used extensively and effectively in dam tailwaters to guide adult salmonids to fish ladders the technology had not been attempted as a means of guiding downstream migrating juvenile salmon to fish bypasses at the same dams. My research on the behavior of migrating salmon smolts suggested that they often migrate by attaching themselves to turbulent flows that allow migration with minimal use of swimming energy. Telemetry studies in the Snake river by USGS scientists demonstrated that smolts that lose contact with the migration cues of flowing water will stop downstream movement and often swim upstream, presumably in search of the lost flows. A means for generating river-like flow patterns seemed essential to aid timely downstream migrations. Much of this logic is presented in ISAB reports and in published articles. Although fine in theory, we lacked understanding of how to develop the induced flows.

Natural Solutions has developed the physical/engineering technology to induce the sort of turbulent flows I believe are desirable to aid smolt migration. Preliminary testing (at their expense) has been very encouraging--smolts appear to be guided by the induced flows. What is needed now is a thorough testing and evaluation of the technology (physical and biological), something that will be of benefit to the region, but which cannot be undertaken by Natural Solutions alone. Testing in small prototype situations could logically lead to application at larger installations such as entrances to Removable Spillway Weirs at major dams.

I have excused myself from ISRP reviews of the proposal while an ISRP member and recently as a PRG member because of my potential conflict of interest, but strongly support it otherwise. I encourage you to recommend it for funding in the current review cycle.

Sincerely,

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Chuck and Nancy Coutant
Oak Ridge, TN